SONY

INTERFACE UNIT

PFV-L10

BACKUP POWER SUPPLY UNIT

BKPF-LPS10

MAINTENANCE MANUAL

1st Edition

Serial No. 10001 and Higher (PFV-L10)

Serial No. 10001 and Higher (BKPF-LPS10)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual of Interface Unit PFV-L10 and Backup Power Supply Unit BKPF-LPS10.
This manual is intended for use by trained system and service engineers, and describes the information of maintenance and detailed service.

Note

The functions and specifications of BKPF-LPS10 and PFV-L10's power supply unit are equal. This manual uses "Power Supply Unit" for BKPF-LPS10 and PFV-L10's power supply unit.

Contents

This manual is organized by following sections.

Section 1 Service Overview
This section explains the removing cabinet, removing optional board, removing the main parts, and how to use the extension board.

Section 2 Spare Parts
This section describes the spare parts.

Section 3 Semiconductor Pin Assignments
This section describes the pin assignments of semiconductors used in PFV-L10 and BKPF-LPS10.

Section 4 Schematic Diagrams
This section describes the schematic diagrams of the boards.

Section 5 Board Layouts
This section describes the board layouts and locations of components.

Related manuals

The following manuals are prepared for the PFV-L10 and BKPF-LPS10.

- **Operation Manual (Supplied with PFV-L10)**
  This manual describes the notes on operating, the locations and functions of parts, and controls of the PFV-L10.

- **Installation Manual (Supplied with PFV-L10)**
  This manual describes the information on installing the PFV-L10 and BKPF-LPS10.

Section 1
Service Overview

1-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP (Supply code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

	Units	Representation
Capacitance	µF	uF
Inductance	µH	uH
Resistance	Ω	Abbreviation

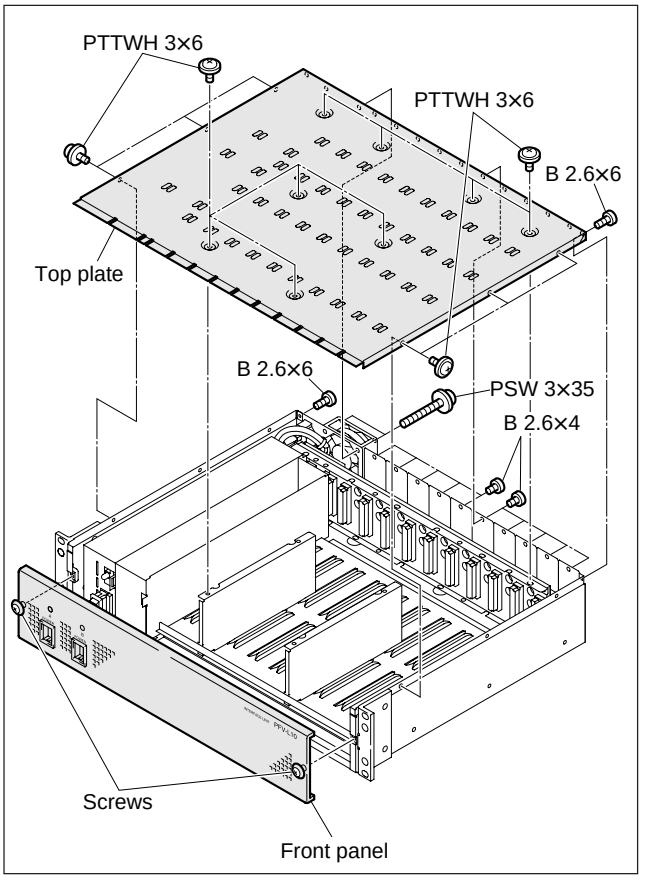
1-2. Removing the Cabinet

Top plate

Remove the 28 screws, then remove the top plate.

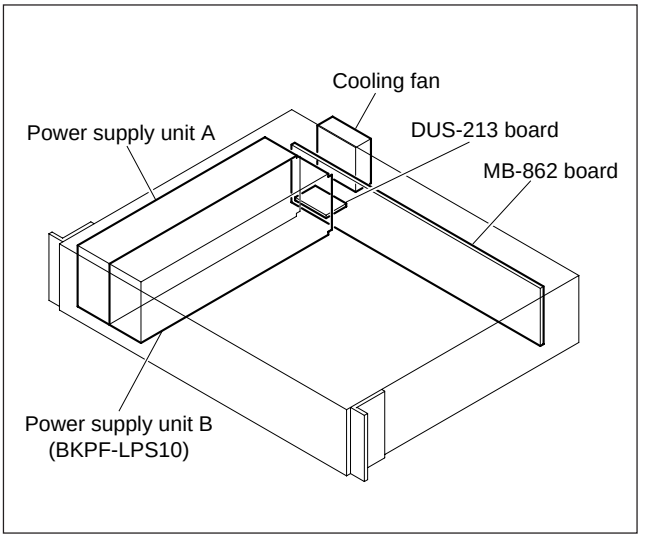
Front panel

Loosen the two screws fully, then remove the front panel.

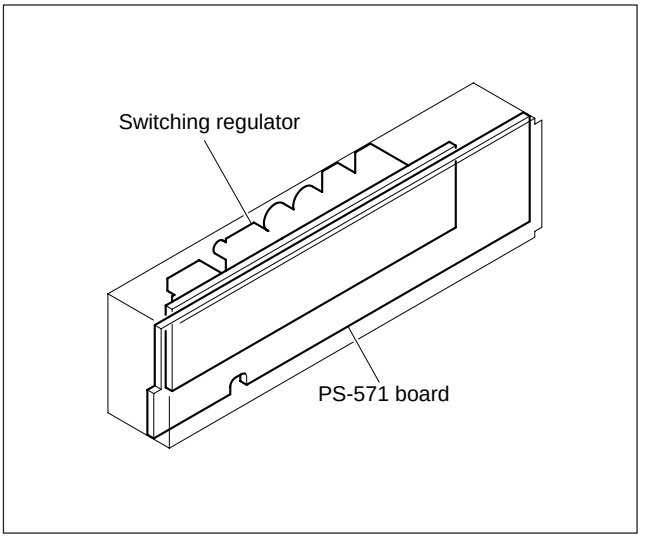


1-3. Main Parts Locations

PFV-L10

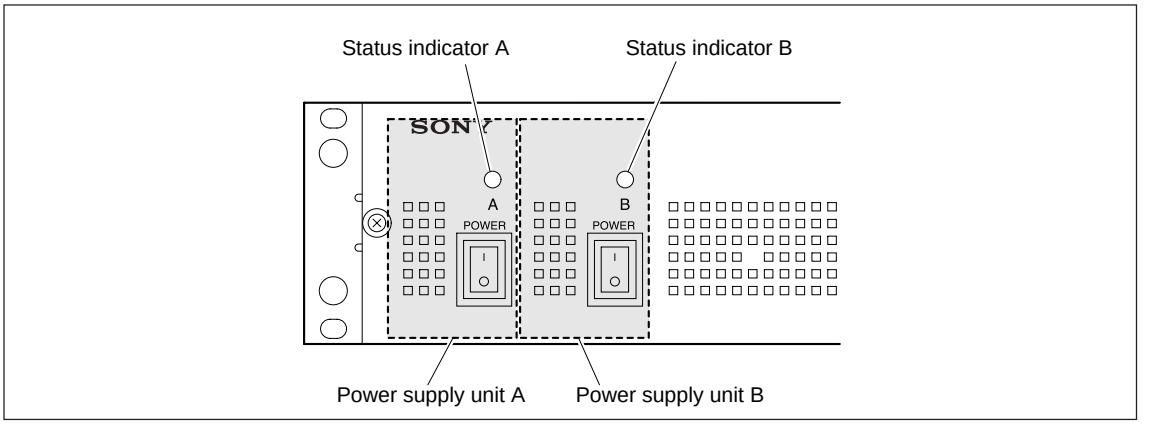


Power Supply Unit (BKPF-LPS10)



1-4. Status Indications

The status indicators A and B on the front panel indicate the present condition of the PFV-L10.



Power Supply Unit	Indicator		Condition
	Indicator A	Indicator B	
One unit	Lights in green	–	Normal operation
	Blinks in red	–	• The cooling fan has stopped rotating. • The total current for the plug-in boards has exceeded 13 A. • The temperature inside the power supply unit A has risen over a specified level.
Two units	Lights in green	Lights in green	Normal operation
	Blinks in red	Lights in green	Power supply unit A • The power switch is set to OFF. • The AC cable has come off. • +5 V voltage is not output. • The temperature inside the power supply unit has risen over a specified level. Power supply unit B: Normal operation
	Lights in green	Blinks in red	Power supply unit A: Normal operation Power supply unit B • The power switch is set to OFF. • The AC cable has come off. • +5 V voltage is not output. • The temperature inside the power supply unit has risen over a specified level.
	Blinks in red	Blinks in red	• The cooling fan has stopped rotating. • The total current for the plug-in boards has exceeded 13 A. • The temperature in the power supply block (power supply units A and B) has risen over a specified level.

1-5. Disconnecting/Connecting the Flexible Card Wire

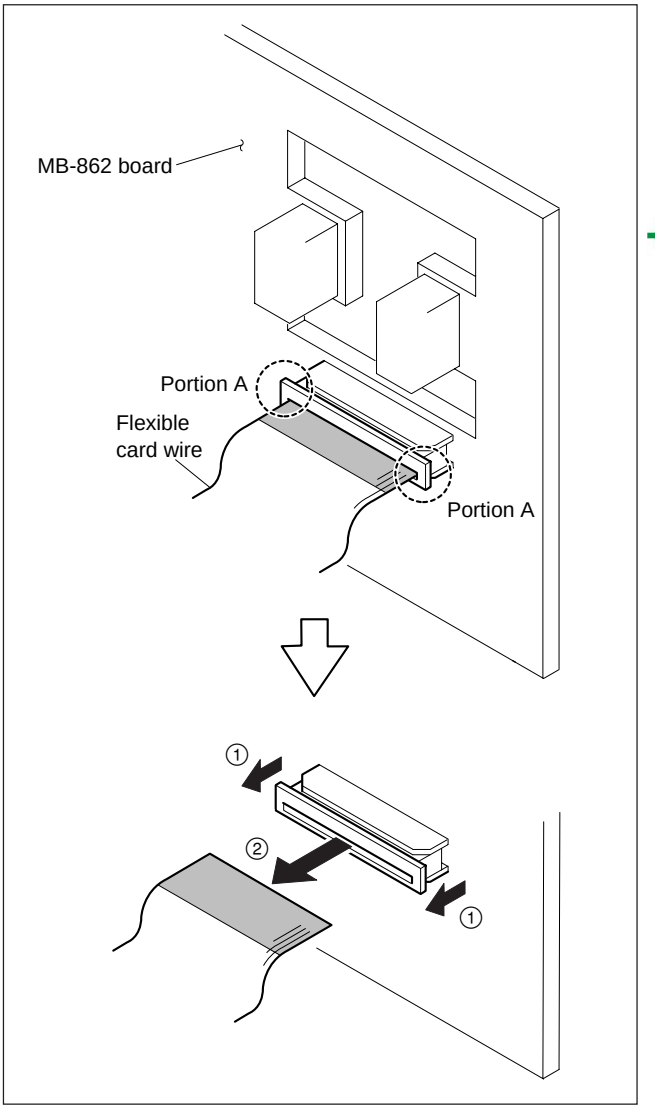
A flexible card wire is used to connect between the MB-862 board and DUS-213 board.
To fold the flexible card wire shortens its life. Pay careful attention when handling it.

Disconnecting procedure

Note

Do not pull the flexible card wire before unlocking the connector.

1. Release the lock by pulling two-portion A of the connector in the direction of the arrow ①. Then remove the flexible card wire (arrow ②).

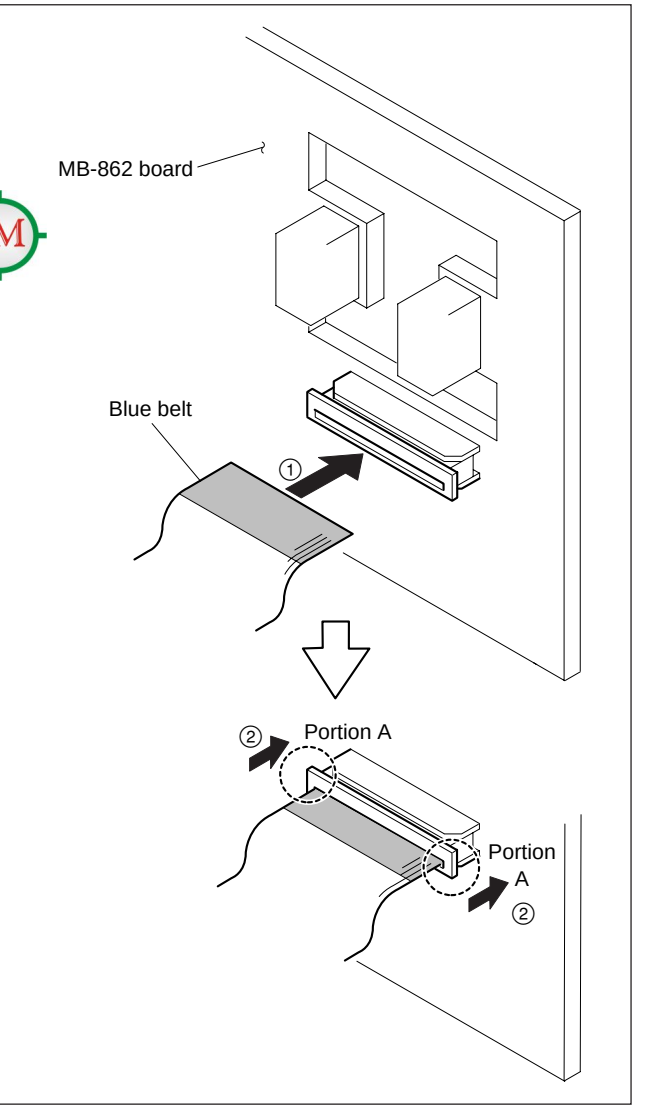


Connecting procedure

Notes

- Make sure that the connector is unlocked.
- The flexible card wire has a conductive portion (in white) and insulation portion (in blue belt).
  Make sure that the direction of the flexible card wire, before connecting it.

1. While holding portions A with one hand so that the connector wouldn't lock, insert the flexible card wire with the blue surface up as far as it will go.
2. Push portions A of the connector to lock the connector.

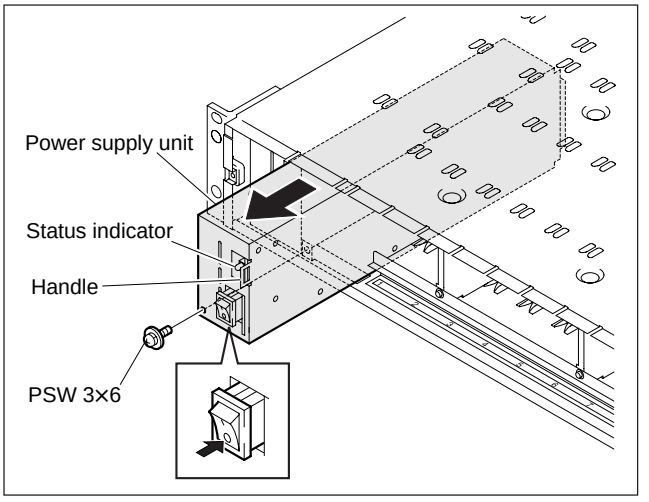


1-6. Replacing the Power Supply Unit

CAUTION

Turn off the power of the power supply unit required replacement and unplug the power plug from the outlet before starting the replacement.

1. Remove the front panel. (Refer to Section 1-2.)
2. Remove one screw fixing the power supply unit.
3. Pull out the power supply unit from the PFV-L10 with its front handle.
4. Set the power switch of a new power supply unit to the "O" (OFF) position.



5. Install the new power supply unit in the reverse order of steps 1 to 3.

Note

Make sure that the status indicator on the front panel lights in green when the power is turned on.

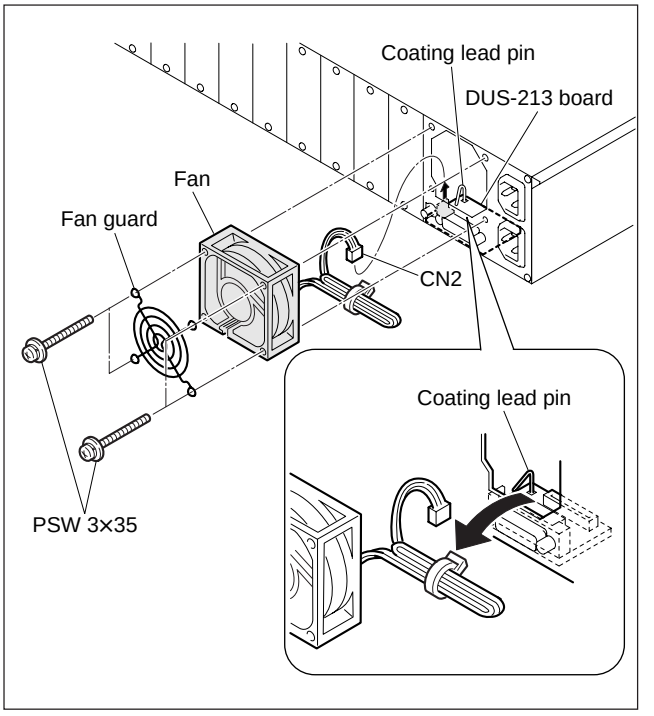
1-7. Replacing the Cooling Fan

CAUTION

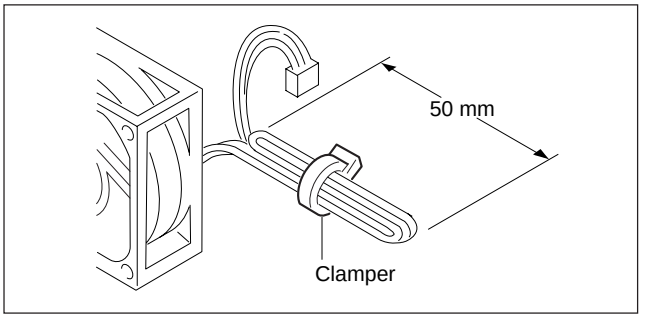
Turn off the power of both power supply units and unplug the power plugs from the outlets before starting the replacement.

Replacement

1. Remove the four screws fixing the fan and fan guard.
2. Release the tied harness from the coating lead pin on the DUS-213 board.
3. Disconnect the harness from the connector CN2 on the DUS-213 board, then remove the fan.



4. Tie the harness of a new fan with a new clamper. (Cut off the unrequired portion of the clamper.)



5. Connect the harness of the fan to the connector CN2.
6. Clamp the harness with the coating lead pin.
7. Secure the fan guard and fan with the four screws.

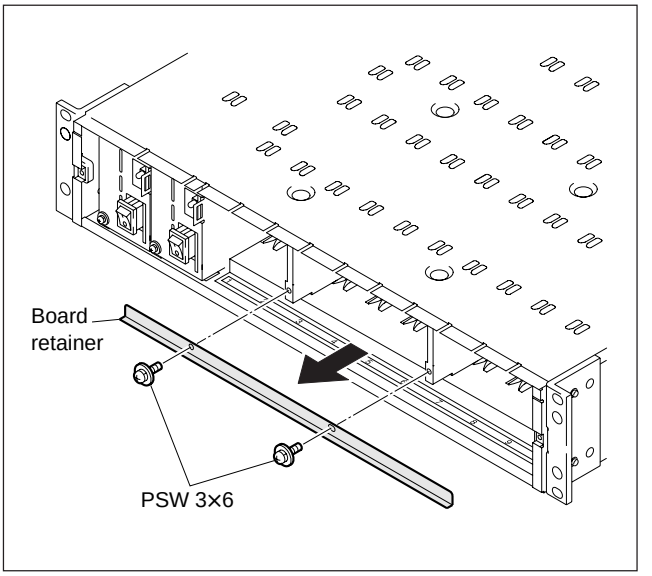
1-8. Replacing the Boards

CAUTION

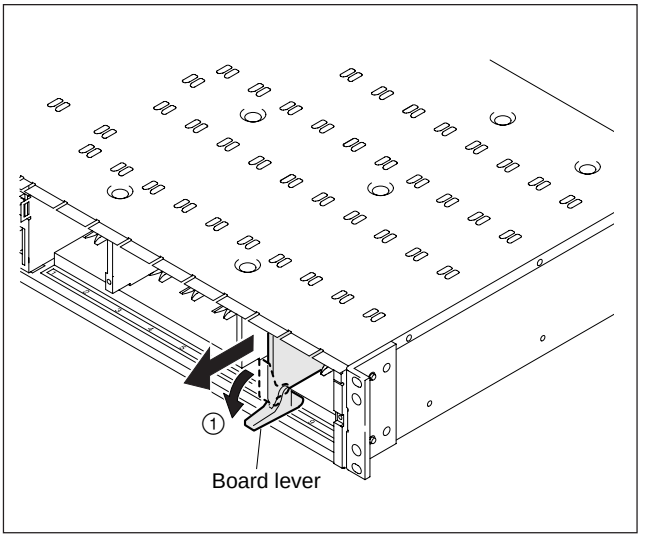
Turn off the power of both power supply units and unplug the power plugs from the outlets before starting the replacement.

1-8-1. The Plug-in Board

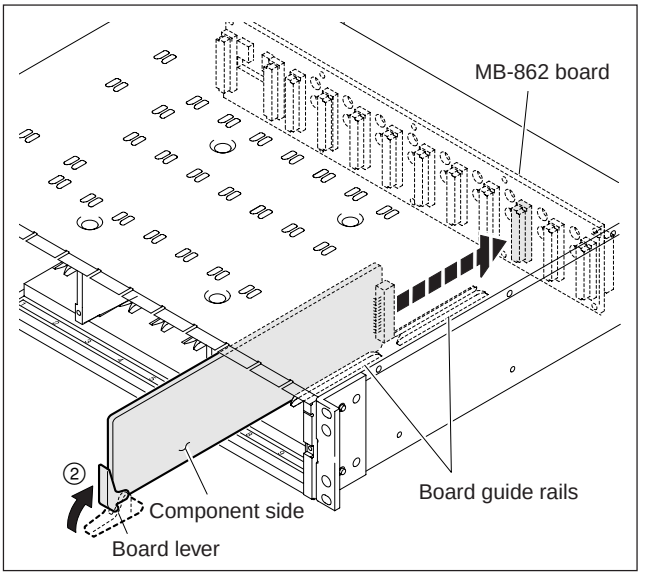
1. Remove the front panel. (Refer to Section 1-2.)
2. Remove the two screws, then remove the board retainer.



3. Turn the board lever in the direction of the arrow ①, then pull out the board toward you.



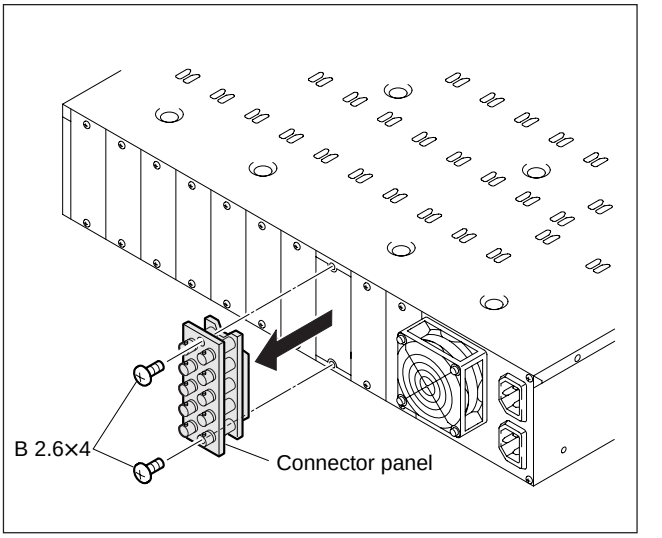
4. Turn the board lever of a new board in the direction of the arrow ②, insert the board along the board guide rails, then push it until it is securely connected to the connector on the MB-862 board.



5. Reattach the board retainer and front panel.

1-8-2. The Connector Board

1. Remove the two screws, then remove the connector panel.



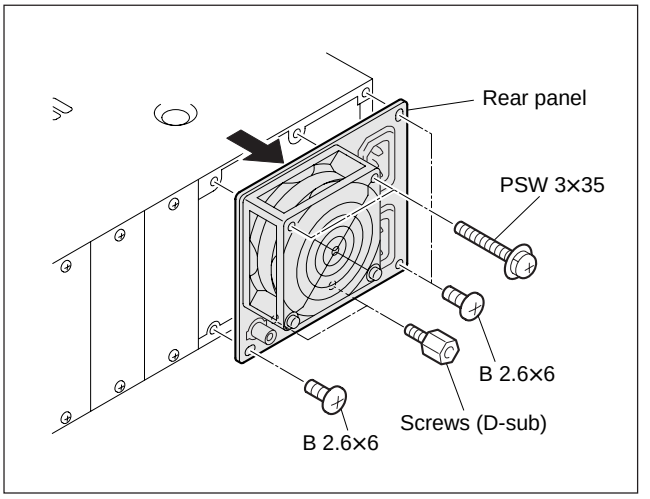
2. Secure a new connector panel to the PFV-L10 with the two screws.

1-8-3. DUS-213 Board

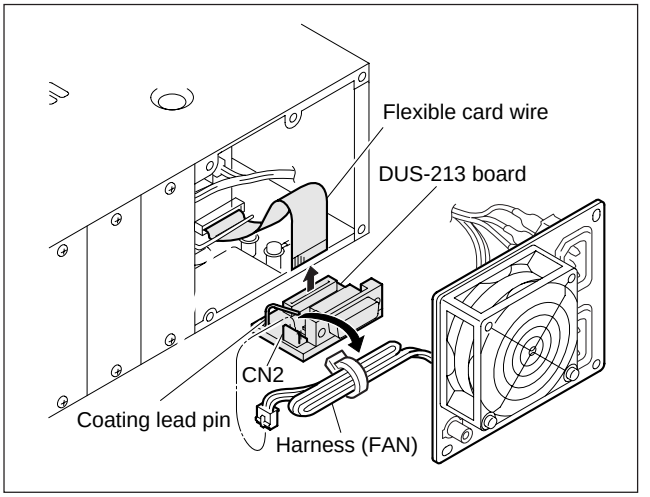
1. Remove the five screws and then carefully pull out the rear panel.

   Note

   The rear panel cannot be removed because it is connected inside the PFV-L10 using the harnesses.
2. Remove the two screws fixing the D-sub connector (on the DUS-213 board).



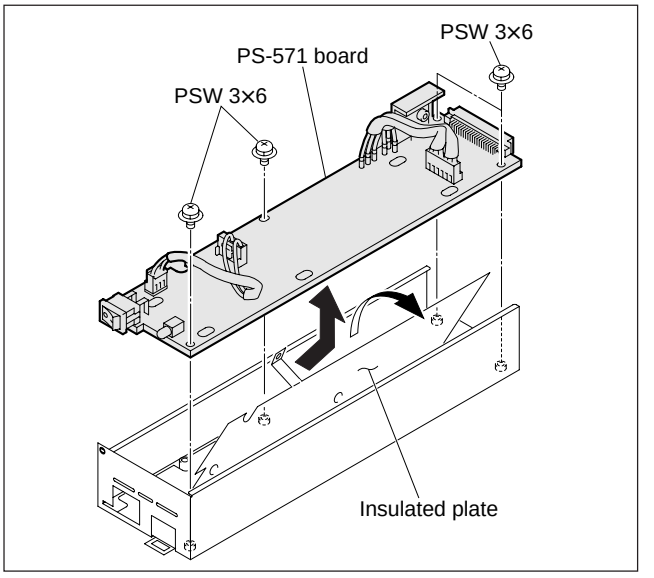
3. Release the harness (FAN) from the coating lead pin and then disconnect it from connector CN2.
4. Disconnect the flexible card wire from the DUS-213 board. (Refer to Section 1-5.)



5. Install a new DUS-213 board in the reverse order of steps 1 to 4.

1-8-4. PS-571 Board

1. Remove the front panel. (Refer to Section 1-2.)
2. Remove the power supply unit that contains the PS-571 board to be replaced. (Refer to Section 1-6.)
3. Remove the switching regulator. (Refer to Section 1-9-1.)
4. Remove the four screws.
5. Open the insulated plate and remove the PS-571 board.



6. Attach a new PS-571 board in the reverse order of steps 4 and 5.
7. Reattach the switching regulator.
8. Reinstall the power supply unit.
9. Reattach the front panel.

1-9. Replacing and Adjusting the Switching Regulator

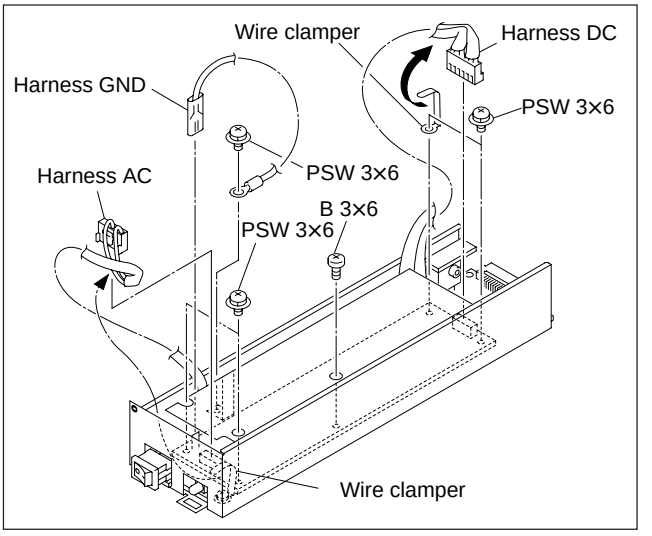
After replacing the switching regulator, be sure to adjust the power supply voltage.
To adjust the power supply voltage, require the power supply tool.

1-9-1. Replacing the Switching Regulator

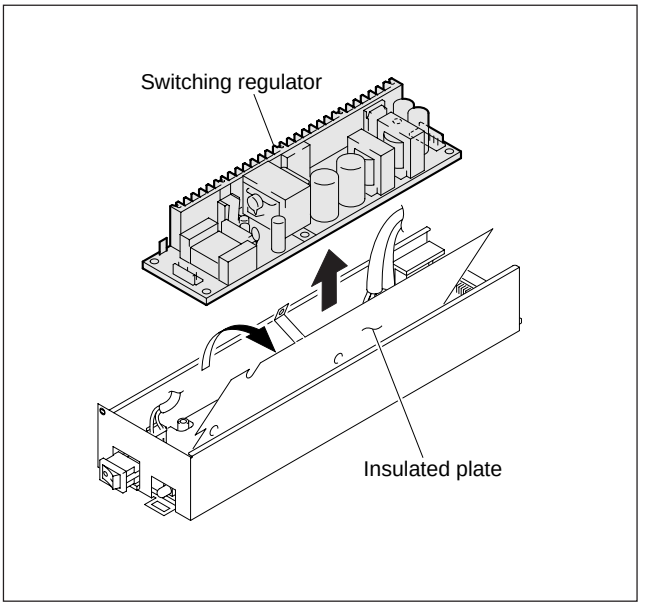
CAUTION

Turn off the power of the power supply unit requiring the switching regulator replacement and unplug the power plug from the outlet before starting the replacement.

1. Remove the front panel. (Refer to Section 1-2.)
2. Remove the power supply unit that contains the switching regulator to be replaced.
   (Refer to Section 1-6.)
3. Remove the six screws.
4. Release the two harnesses (AC and DC) from the two wire clampers, then disconnect them from the switching regulator.
5. Disconnect the harness GND from the switching regulator.



6. Open the insulated plate and then remove the switching regulator.
7. Install a new switching regulator in the reverse order of steps 3 to 6.
8. Adjust the power supply voltage.
   (Refer to Section 1-9-2.)
9. Reinstall the adjusted power supply unit in the PFV-L10 and then reattach the front panel.



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1-9-2. Adjusting the Power Supply Voltage

Note

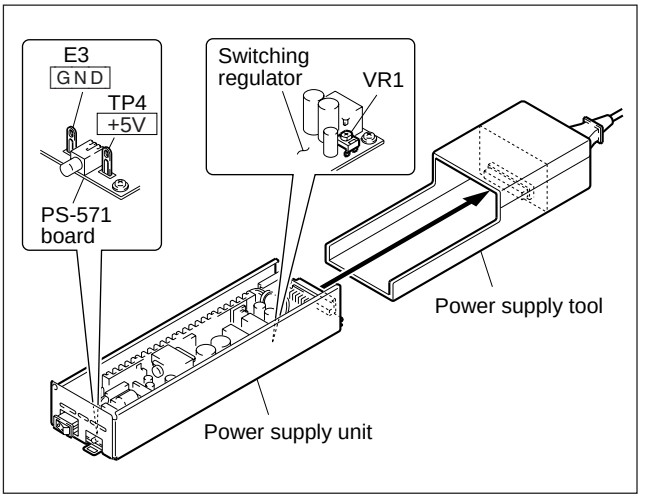
Adjust the power supply voltage before reinstalling the power supply unit in the PFV-L10.

Required equipment

- Power supply tool (A-8323-642-A)
- Power cord (Cord used in the PFV-L10 or the equivalent)
- Digital voltmeter
- Adjustment driver

Preparation

1. Confirm that the power plug of the power supply tool is unplugged from the outlet.
2. Attach the power supply tool to the power supply unit.
3. Connect the power plug to the outlet, then set the power switch of the power supply unit to the ON (“I”) position.



Adjustment

1. Connect the − probe (Common) of the digital voltmeter to E3 GND.
2. Connect the + probe to TP4 +5 V.
3. Adjust the voltage on the digital voltmeter.
   Adjustment part: ⊘VR1/Switching regulator
   Specification: +5.45 $^{+0}_{-0.01}$ V

After adjustment is completed

1. Set the power switch of the power supply unit to the OFF (“O”) position.
2. Disconnect the power plug from the outlet.
3. Remove the power supply tool.

1-10. Extension Board

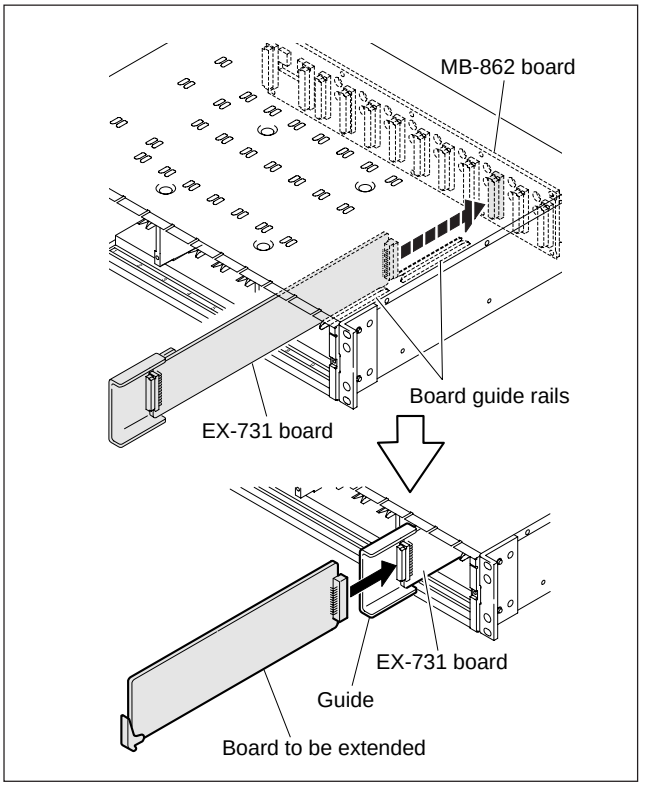
The following extension board is ready for PFV-L10 as an optional accessory.

Extension Board	SONY Parts No.	Apply to
EX-731	A-8322-598-A	BKPF-Lxxx series

This section describes how to install and remove the EX-731 board in and from the PFV-L10.

Installation

1. Remove the board to be extended. (Refer to Section 1-8-1.)
2. Insert the EX-731 board along the board guide rails.
3. Insert the EX-731 board into the slot as far as it will go and securely connect it to the connector on the MB-862 board.
4. Insert the board to be extended along the guide on the EX-731 board.
5. Push the board to be extended and securely connect it to the EX-731 board.

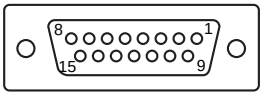


Removal

1. Pull out the extended board from the EX-731 board.
2. Pull out the EX-731 board from the slot.
3. Reinstall the extended board in the slot.

1-11. Function of STATUS OUT Connector

The PFV-L10 output the following status with the STATUS OUT connector.



<External view>

Pin No.	Signal	Location	Status	
			L	H
1	DIAG 1	SLOT 1	Normal operation or No board	Board: Error
2	DIAG 2	SLOT 2	Normal operation or No board	Board: Error
3	DIAG 3	SLOT 3	Normal operation or No board	Board: Error
4	DIAG 4	SLOT 4	Normal operation or No board	Board: Error
5	DIAG 5	SLOT 5	Normal operation or No board	Board: Error
6	DIAG 6	SLOT 6	Normal operation or No board	Board: Error
7	DIAG 7	SLOT 7	Normal operation or No board	Board: Error
8	DIAG 8	SLOT 8	Normal operation or No board	Board: Error
9	DIAG 9	SLOT 9	Normal operation or No board	Board: Error
10	DIAG PS B	POWER B	Normal operation	Power : OFF or Temperature : Too high
11	DIAG PS A	POWER A	Normal operation	Power : OFF or Temperature : Too high
12	FAN STOP	FAN	Normal operation	Stop
13	OVER LOAD	POWER A, B	Normal operation (Load current: less than 8 A)	Load current: 8 A or more
14	DIAG 10	SLOT 10	Normal operation or No board	Board: Error
15	GND	–	–	–

Section 2
Spare Parts

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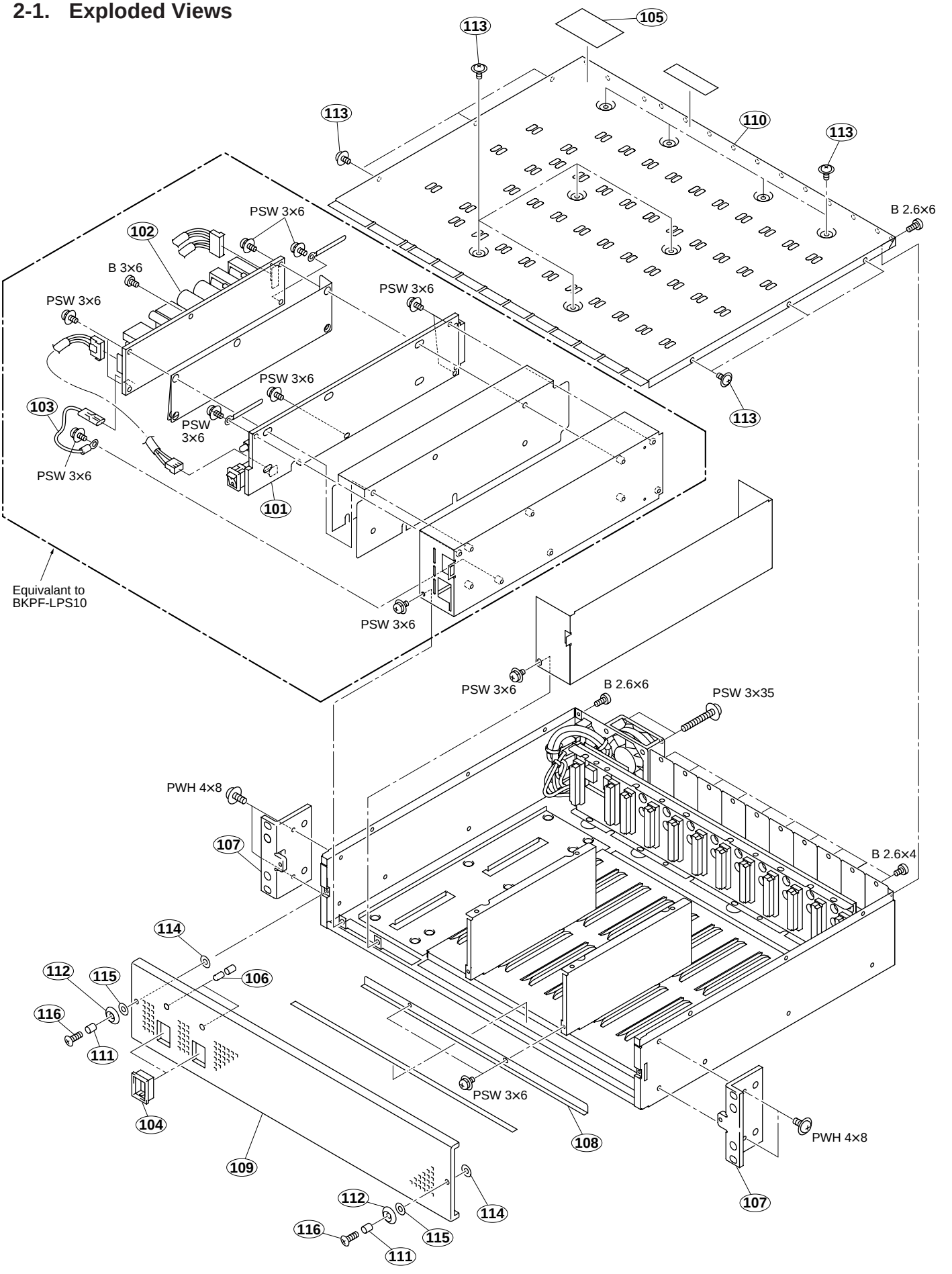
2-1. Exploded Views

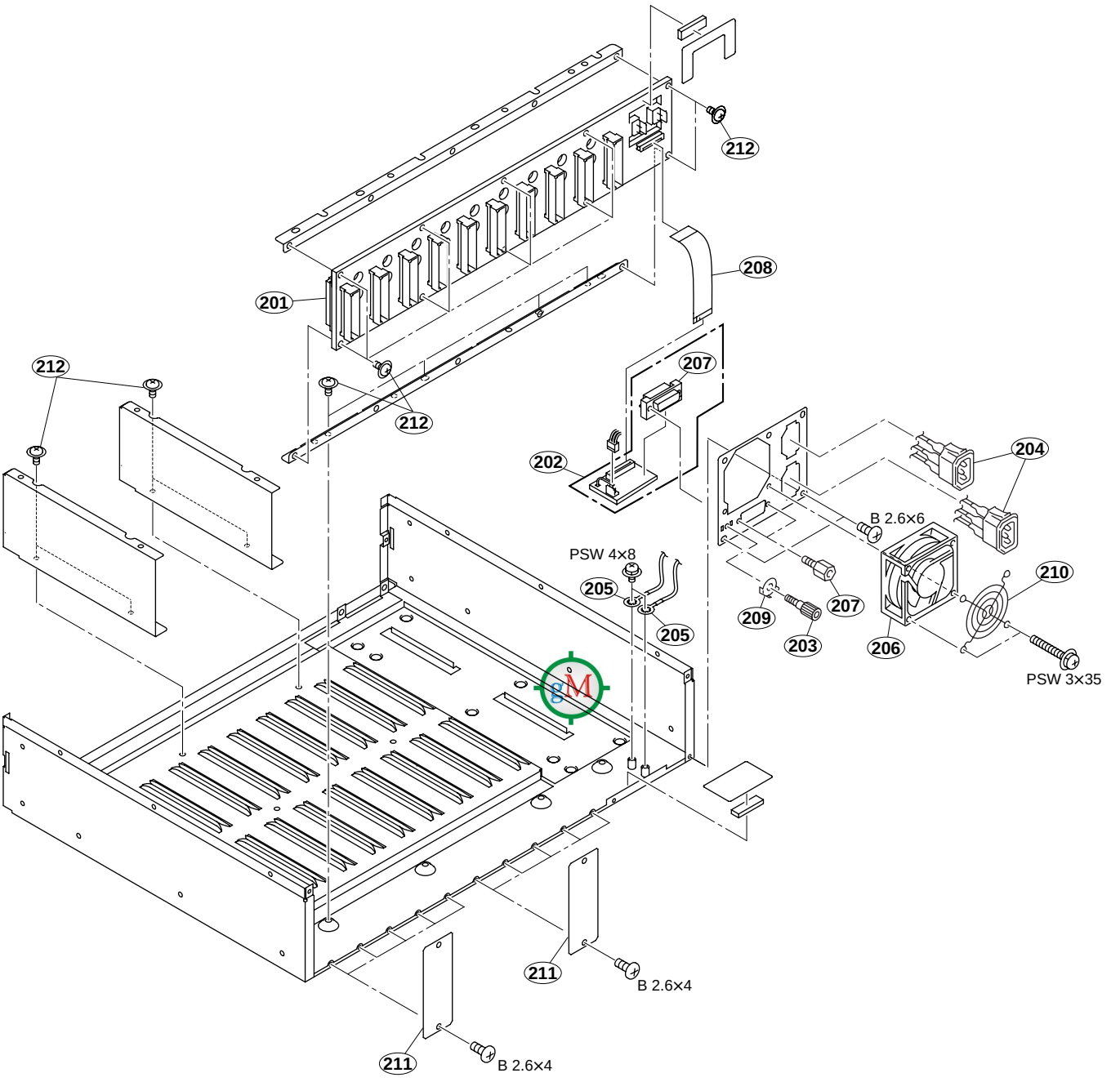


No.	Part No.	SP	Description
101	A-8322-739-A	o	MOUNTED CIRCUIT BOARD, PS-571
102 ⚠	1-468-428-11	s	REGULATOR, SWITCHING
103 ⚠	1-956-493-11	o	HARNESS (GND)
104	3-189-023-02	o	COVER, SW
105	3-189-579-01	o	LABEL, REDUNDANT CAUTION
106	3-194-914-21	o	FOAM (2), SHIELD
107	3-202-583-01	o	BRACKET, RACK MOUNT
108	3-202-586-01	o	RETAINER, PC BOARD
109	3-202-591-01	o	PANEL, FRONT
110	3-202-596-01	o	PLATE, TOP
111	3-657-842-01	s	COLLAR (DIA 3X4)
112	3-703-224-00	s	WASHER (3 DIA.), ORNAMENTAL
113	4-886-821-11	s	SCREW M 3X6, CASE (SILVER)
114	7-623-923-11	s	WASHER, PLASTIC (2.6X0.3)
115	7-623-924-01	s	WASHER, PLASTIC (3X0.5)
116	7-682-249-04	s	SCREW +K 3X10 (EP-FE/CU,NI,CR)

Screws

	7-621-773-86	s	SCREW +B 2.6X4 (EP-FE/CU,NI,CR)
	7-621-773-95	s	SCREW +B 2.6X6 (EP-FE/ZNBK/CM2)
	7-682-547-04	s	SCREW +B 3X6 (EP-FE/CU,NI,CR)
	7-682-904-11	s	SCREW +PWH 4X8 (EP-FE/ZN/CM2)
	7-682-947-01	s	SCREW +PSW 3X6 (EP-FE/ZN/CM2)
	7-682-956-09	s	SCREW +PSW 3X35 (EP-FE/ZNBK/CM2)

Rear Panel



No.	Part No.	SP	Description
201	A-8322-736-A	o	MOUNTED CIRCUIT BOARD, MB-862
202	A-8322-737-A	o	MOUNTED CIRCUIT BOARD, DUS-213
203	X-2068-004-0	s	TERMINAL ASSY
204	⚠ 1-526-954-11	s	INLET, AC
205	⚠ 1-537-568-11	o	TERMINAL, GROUND
206	1-698-654-11	s	FAN, DC BRUSHLESS MOTOR
207	1-750-889-11	s	CONNECTOR, D-SUB(ANGLE TYPE) 15P
208	1-790-950-11	o	WIRE, FLAT TYPE (20 CORE)
209	2-068-008-00	s	WASHER
210	2-990-449-01	o	GUARD, FAN
211	3-194-621-01	o	PANEL, CN BLANK
212	4-886-821-11	s	SCREW M 3X6, CASE (SILVER)

Screws

	7-621-773-86	s	SCREW +B 2.6X4 (EP-FE/CU,NI,CR)
	7-621-773-95	s	SCREW +B 2.6X6 (EP-FE/ZNBK/CM2)
	7-682-956-09	s	SCREW +PSW 3X35 (EP-FE/ZNBK/CM2)
	7-682-961-01	s	SCREW +PSW 4X8 (EP-FE/ZN/CM2)

2-2. Electrical Parts List

DUS-213 BOARD / PFV-L10

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8322-737-A	o	MOUNTED CIRCUIT BOARD, DUS-213
C1	1-115-566-11	s	CERAMIC, CHIP 4.7uF 10% 10V (3216)
C2	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C3	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C4	1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
CN1	1-573-853-31	s	CONNECTOR, FPC/FFC 20P
CN2	1-560-357-11	o	CONNECTOR, IL-G 3P, MALE
CN3	1-750-889-11	s	CONNECTOR, D-SUB 15P, FEMALE
D1	8-719-800-76	s	DIODE 1SS226
IC1	8-759-988-13	s	IC LM393PS
IC2	8-759-242-76	s	IC TC7W08F
Q1	8-729-920-56	s	TRANSISTOR FMG1
Q2	8-729-920-56	s	TRANSISTOR FMG1
Q3	8-729-920-56	s	TRANSISTOR FMG1
Q4	8-729-920-56	s	TRANSISTOR FMG1
Q5	8-729-920-56	s	TRANSISTOR FMG1
Q6	8-729-920-56	s	TRANSISTOR FMG1
Q7	8-729-920-56	s	TRANSISTOR FMG1
Q8	8-729-920-56	s	TRANSISTOR FMG1
R1	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W (2012)
R3	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W (2012)
R4	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W (2012)
R5	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W (2012)
R6	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R7	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R8	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W (2012)
R9	1-216-105-11	s	METAL, CHIP 220K 5% 1/10W (2012)
R10	1-218-776-11	s	METAL, CHIP 1.0M 0.5% 1/10W (2012)
R11	1-216-105-11	s	METAL, CHIP 220K 5% 1/10W (2012)
R20	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W (2012)
R21	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W (2012)
RB1	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB2	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB3	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB4	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB5	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB6	1-236-908-11	s	RES, NETWORK, CHIP 10Kx4 (3216)
RB8	1-239-430-11	s	RES, NETWORK, CHIP 4.7Kx4 (3216)

MB-862 BOARD / PFV-L10

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8322-736-A	o	MOUNTED CIRCUIT BOARD, MB-862
C1	1-107-877-11	s	ELECT 1000uF 20% 10V
C2	1-107-877-11	s	ELECT 1000uF 20% 10V
C3	1-107-877-11	s	ELECT 1000uF 20% 10V
C10	1-107-877-11	s	ELECT 1000uF 20% 10V
C11	1-107-877-11	s	ELECT 1000uF 20% 10V
C12	1-107-877-11	s	ELECT 1000uF 20% 10V
C13	1-107-877-11	s	ELECT 1000uF 20% 10V
C14	1-107-877-11	s	ELECT 1000uF 20% 10V
C15	1-107-877-11	s	ELECT 1000uF 20% 10V
C16	1-107-877-11	s	ELECT 1000uF 20% 10V
C17	1-107-877-11	s	ELECT 1000uF 20% 10V
C18	1-107-877-11	s	ELECT 1000uF 20% 10V
C19	1-107-877-11	s	ELECT 1000uF 20% 10V
C21	1-107-877-11	s	ELECT 1000uF 20% 10V
C23	1-107-877-11	s	ELECT 1000uF 20% 10V
C25	1-107-877-11	s	ELECT 1000uF 20% 10V
C27	1-107-877-11	s	ELECT 1000uF 20% 10V
C29	1-107-877-11	s	ELECT 1000uF 20% 10V
CN11 ⚠	1-691-960-11	o	CONNECTOR, VH, 3P, MALE
CN12 ⚠	1-691-960-11	o	CONNECTOR, VH, 3P, MALE
CN15	1-764-162-11	o	CONNECTOR, FPC/FFC 20P
Q1	8-729-140-21	s	TRANSISTOR 2SA1444-L
R1	1-215-397-00	s	METAL 100 1% 1/4W
R2	1-215-397-00	s	METAL 100 1% 1/4W
R3	1-247-843-11	s	CARBON 3.3K 5% 1/4W
R4	1-249-413-11	s	CARBON 470 5% 1/4W

PS-571 BOARD / PFV-L10 & BKPF-LPS10

Ref. No. or Q'ty		Part No.	SP	Description
1pc		A-8322-739-A	o	MOUNTED CIRCUIT BOARD, PS-571 (with Harness, DC)
2pcs		3-192-065-01	o	SHEET, RADIATION (for D2 and D3)
1pc		7-682-953-09	s	SCREW +PSW 3x20
1pc		7-684-023-04	s	NUT M3, TYPE 2
2pcs		7-685-547-14	s	SCREW +BTP 3x10
1pc		3-202-597-01	o	HEAT SINK
C1		1-115-566-11	s	CERAMIC, CHIP 4.7uF 10% 10V (3216)
C2		1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V (2012)
C4		1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C6		1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C7	⚠	1-137-525-11	s	FILM 0.1uF 20% 250V
C20		1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C21		1-164-004-11	s	CERAMIC, CHIP 0.1uF 10% 25V (2012)
C22	⚠	1-115-163-11	s	FILM 0.022uF 20% 275V
C23	⚠	1-113-907-51	s	CERAMIC 2200pF 20% 250V
C24	⚠	1-113-907-51	s	CERAMIC 2200pF 20% 250V
CN1	⚠	1-506-746-11	s	CONNECTOR, DIN 48P, MALE
CN2	⚠	1-691-960-11	o	CONNECTOR, VH, 3P, MALE
CN5		1-560-357-11	o	CONNECTOR, IL-G 3P, MALE
D1		8-719-074-85	s	LED 550-3505, RED/GEN
D2		8-719-062-46	s	DIODE PA886C02
D3		8-719-062-46	s	DIODE PA886C02
E1		1-535-881-21	o	TERMINAL, TP
E2		1-535-881-21	o	TERMINAL, TP
E3		1-535-881-21	o	TERMINAL, TP
FB1		1-469-324-21	s	FERRITE, CHIP EMI
FB2		1-469-324-21	s	FERRITE, CHIP EMI
IC1		8-759-925-72	s	IC SN74HC02ANS
IC2		8-759-387-75	s	IC TC7W00F
IC3		8-759-988-13	s	IC LM393PS
L1	⚠	1-419-224-11	s	COIL, COMMON MODE CHOKE
Q1		8-729-027-31	s	TRANSISTOR DTA124EKA
Q2		8-729-027-31	s	TRANSISTOR DTA124EKA
Q3		8-729-901-00	s	TRANSISTOR DTC124EK
Q4		8-729-901-00	s	TRANSISTOR DTC124EK
R1		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R2		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R3		1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W (2012)
R4		1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W (2012)
R5		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R6		1-218-756-11	s	METAL, CHIP 150K 0.5% 1/10W (2012)
R13		1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W (2012)
R14		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R15		1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W (2012)
R16		1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W (2012)
R17	⚠	1-214-937-00	s	METAL 1.0M 1% 1/2W
R18		1-216-025-00	s	METAL, CHIP 100 5% 1/10W (2012)
R19		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R20		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R21		1-216-025-00	s	METAL, CHIP 100 5% 1/10W (2012)

(PS-571 BOARD / PFV-L10 & BKPF-LPS10)

Ref. No. or Q'ty		Part No.	SP	Description
R25		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R26		1-216-025-00	s	METAL, CHIP 100 5% 1/10W (2012)
R27		1-216-025-00	s	METAL, CHIP 100 5% 1/10W (2012)
R28		1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W (2012)
R50		1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W (2012)
R51		1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W (2012)
R52		1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W (2012)
R53		1-216-695-11	s	METAL, CHIP 68K 0.5% 1/10W (2012)
R54		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
R55		1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W (2012)
R56		1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W (2012)
S1	⚠	1-771-744-11	s	SWITCH, AC POWER SEESAW
TH2		1-810-827-11	s	THERMISTOR 103AT-2
TP1		1-535-881-21	o	TERMINAL, TP
TP2		1-535-881-21	o	TERMINAL, TP
TP3		1-535-881-21	o	TERMINAL, TP
TP4		1-535-881-21	o	TERMINAL, TP

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FRAME / PFV-L10 & BKPF-LPS10
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 Ref. No.
 or Q'ty  Part No.    SP Description

 1pc   ⚠ 1-468-428-11 s SWITCHING REGULATOR
 2pcs  ⚠ 1-526-954-11 s INLET, AC 3P, MALE
 1pc     1-698-654-11 s MOTOR, DC, BRUSHLESS FAN
                        (with Harness)
 1pc     1-750-889-11 s CONNECTOR, D-SUB, 15P, FEMALE
                        "STATUS OUT" (on DUS-213 board)
 1pc   ⚠ 1-771-744-11 s SWITCH, AC POWER SEESAW
                        "POWER Switch" (on PS-571 board)
 1pc     8-719-074-85 s LED 550-3505, RED/GEN
                        "POWER Indicator"(on PS-571 board)

 HN101   - - -          HARNESS (FAN)
  3pcs   1-560-372-00 s CONTACT, IL-G, FEMALE, AWG22-28
  1pc    1-561-515-00 o HOUSING, IL-G 3P

 HN102   1-790-950-11 o WIRE, FLEXIBLE CARD 20P

 HN103   - - -          HARNESS (AC IN-A)
  1pc  ⚠ 1-537-568-11 o TERMINAL, GROUND
  2pcs ⚠ 1-562-210-11 s CONTACT, VH, FEMALE, AWG18-22
  1pc  ⚠ 1-562-211-11 o HOUSING, VH 3P

 HN104   - - -          HARNESS (AC IN-B)
  1pc  ⚠ 1-537-568-11 o TERMINAL, GROUND
  2pcs ⚠ 1-562-210-11 s CONTACT, VH, FEMALE, AWG18-22
  1pc  ⚠ 1-562-211-11 o HOUSING, VH 3P

 HN105   - - -          HARNESS (DC)
  6pcs   1-562-210-11 o CONTACT, VH, FEMALE, AWG18-22
  1pc    1-562-287-11 o HOUSING, VH 6P
  6pcs   1-793-492-11 o TERMINAL, SOLDERLESS, MALE

 HN106 ⚠ 1-956-493-11 o HARNESS (GND)

 HN107   - - -          HARNESS (AC)
  4pcs ⚠ 1-562-210-11 s CONTACT, VH, FEMALE, AWG18-22
  1pc  ⚠ 1-562-211-11 o HOUSING, VH 3P
  1pc  ⚠ 1-562-286-11 o HOUSING, VH 5P
```

2-3. Power Cords List

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 Q'ty     Part No.    SP Description

 <For costomers in the Japan>

 1pc   ⚠ 1-575-181-11 s CORD SET, AC POWER
 1pc   ⚠ 1-793-461-11 s CONNECTOR, CONVERTION


 <For costomers in the U.S.A. and Canada>

 1pc   ⚠ 1-557-377-11 s CORD, AC POWER


 <For costomers in the United Kingdom>

 1pc   ⚠ 1-590-910-11 s CORD, AC POWER
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2-4. Optional Fixtures List

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PFV-L10
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 Part No.    SP Description

 A-8322-598-A o EXTENSION BOARD, EX-731



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PFV-L10 & BKPF-LPS10
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 Part No.    SP Description

 A-8323-642-A o POWER SUPPLY TOOL
```

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Section 3
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はICメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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SN74HC02ANSR	3-3
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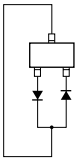
TC7W08F	3-3
TC7W08F(TE12R)	3-3

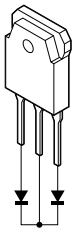
Diode, LED, Transistor

DIODE

—TOP VIEW—



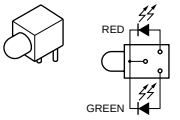
1SS123-T1
1SS226



PA886C02

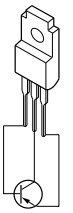
LED

—BOTTOM VIEW—



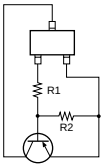
550-3505

TRANSISTOR



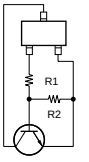
2SA1444-L

—TOP VIEW—



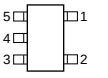
DTA124EKA-T146
(R1=22k,R2=22k)

—TOP VIEW—

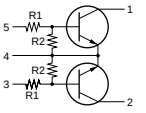


DTC124EKA-T146
(R1=22k,R2=22k)

—TOP VIEW—



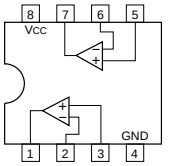
FMG1
(R1=22k,R2=22k)
FMG1T148



IC

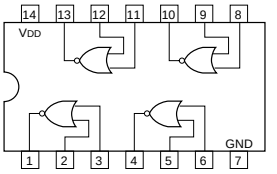
LM393PS (TI)
LM393PS-E20

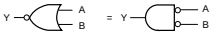
DUAL VOLTAGE COMPARATORS
—TOP VIEW—



SN74HC02ANS (TI)
SN74HC02ANSR

C-MOS QUAD 2-INPUT NOR GATES
—TOP VIEW—





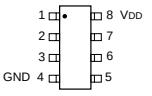
$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

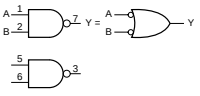
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

TC7W00F (TOSHIBA)
TC7W00F(TE12R)

C-MOS DUAL 2-INPUT NAND GATE
—TOP VIEW—





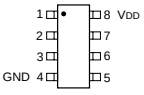
$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

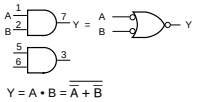
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 : LOW LEVEL
1 : HIGH LEVEL

TC7W08F (TOSHIBA)
TC7W08F(TE12R)

C-MOS 2-INPUT AND GATE
—TOP VIEW—





$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 : LOW LEVEL
1 : HIGH LEVEL

Section 4
Schematic Diagrams

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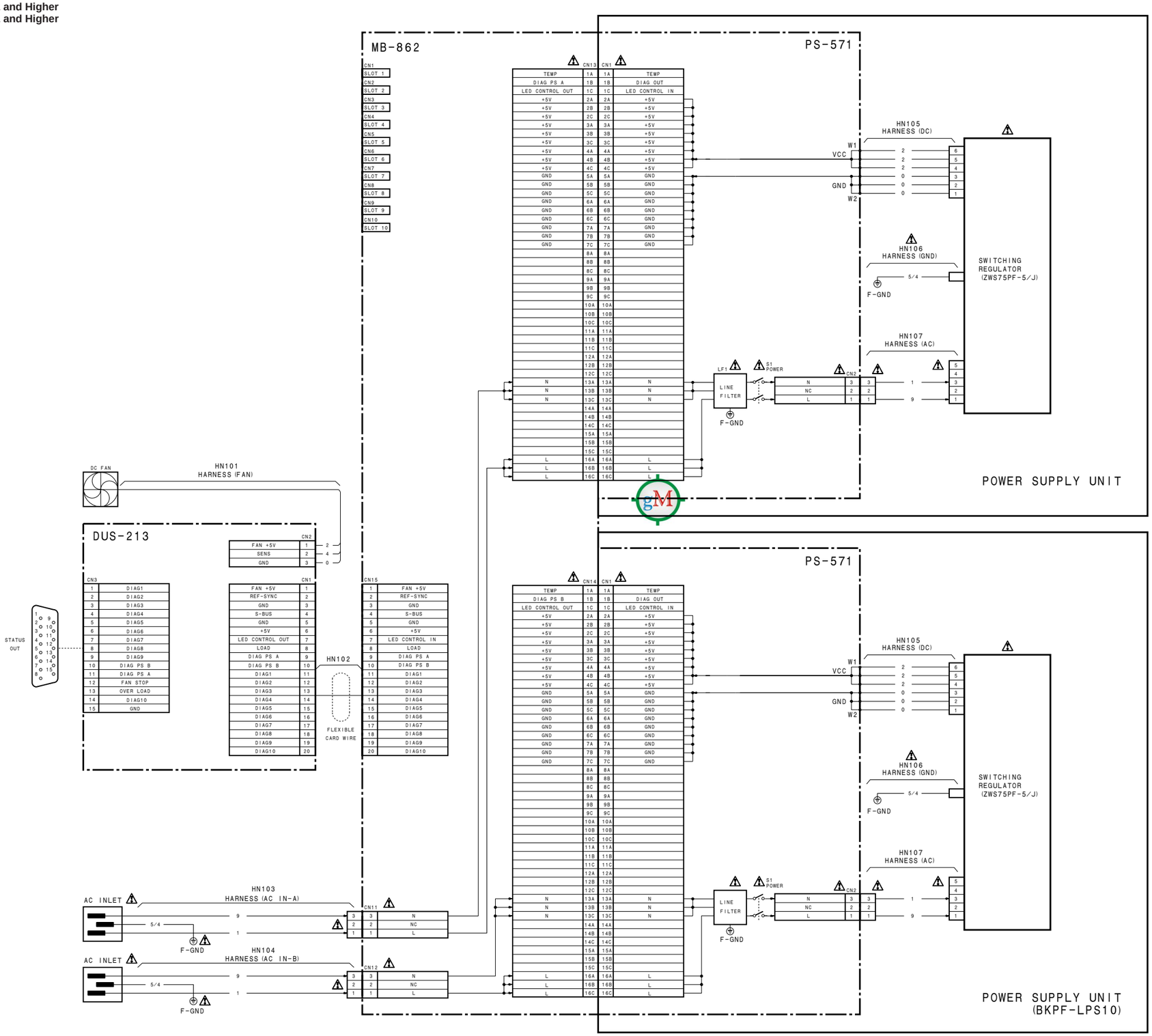
Board Name	Function	Page
FRAME	–	4-2
DUS-213 Board	Status Buffer Board	4-3
MB-862 Board	Motherboard	4-4
PS-571 Board	AC Noise Filter and DIAG (Diagnostics) Board	4-6

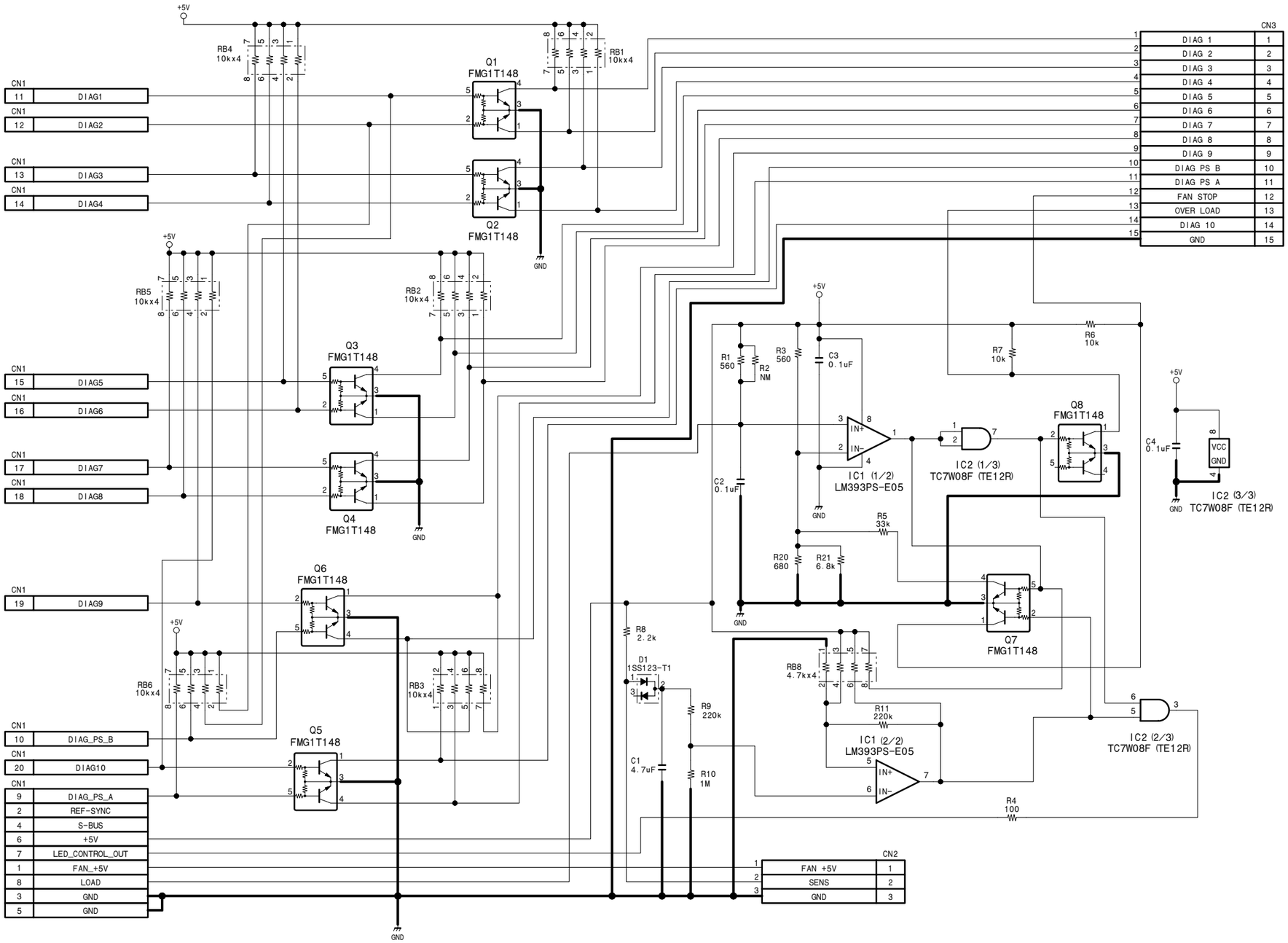
4-1

PFV-L10 (SY) : S/N 10001 and Higher
BKPF-LPS10 (SY) : S/N 10001 and Higher



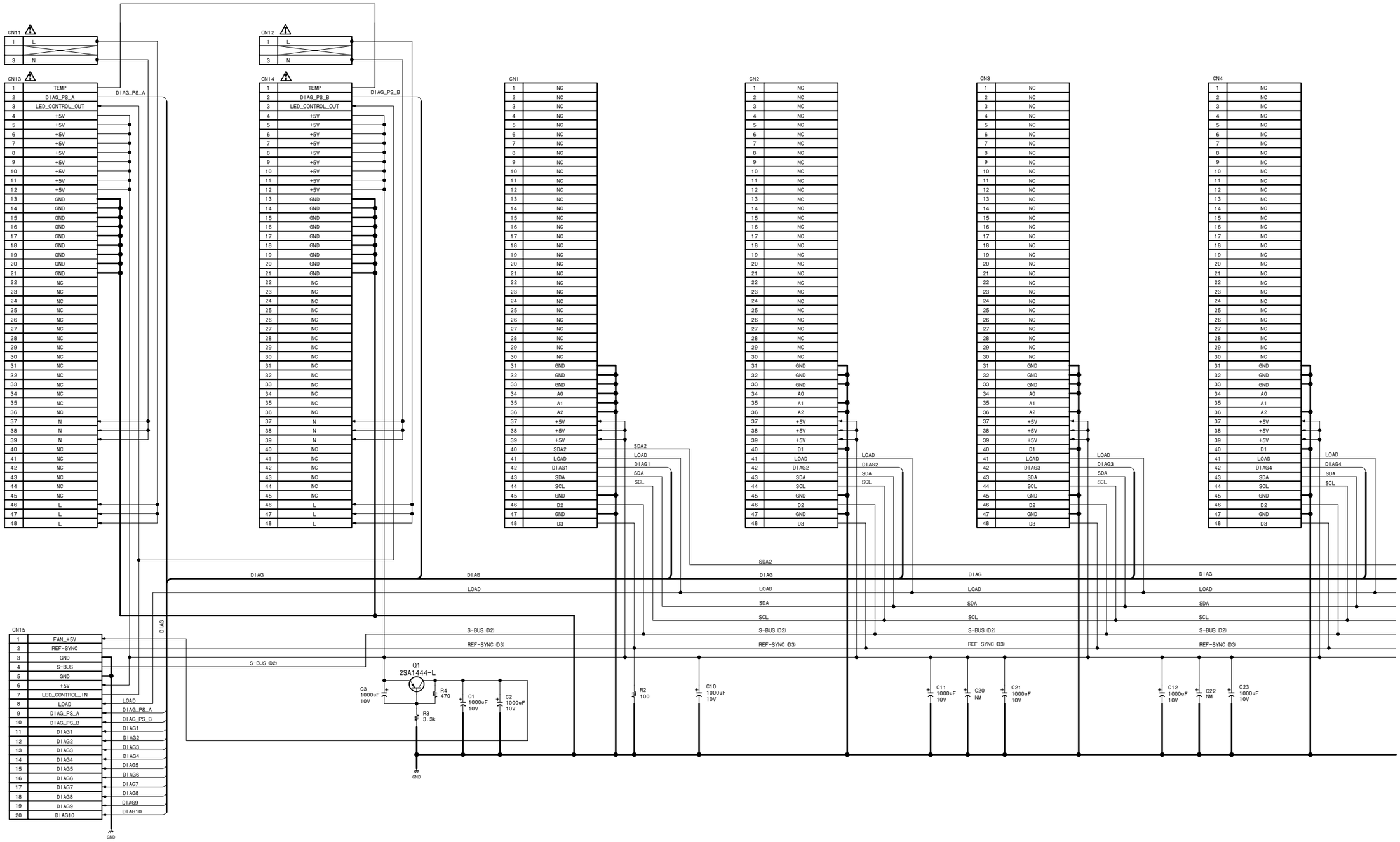
FRAME
LOT NO. 902-

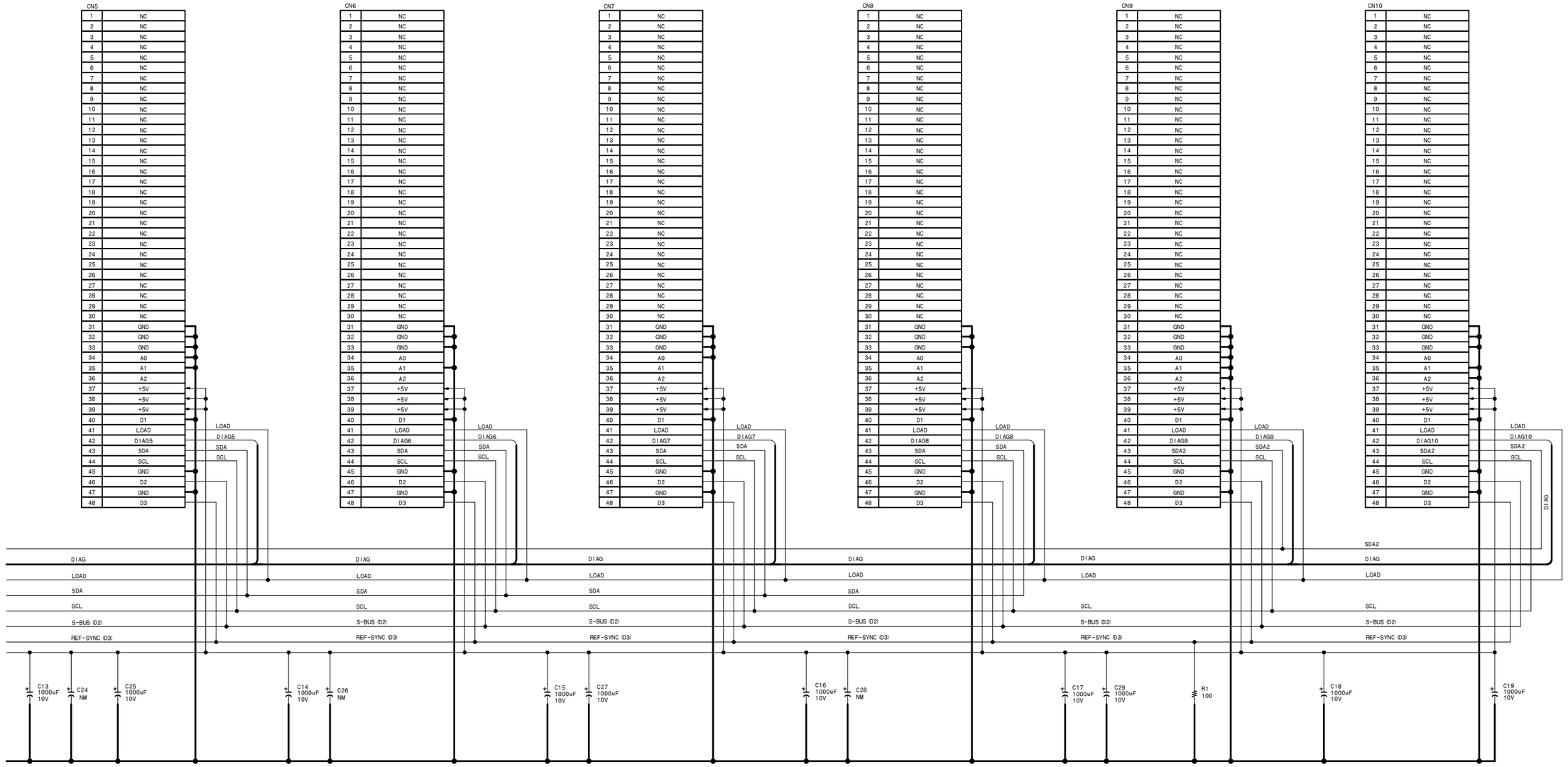
PFV-L10 (SY) : S/N 10001 and Higher



DUS-213
BOARD NO. 1-674-367-11
LOT NO. 902-

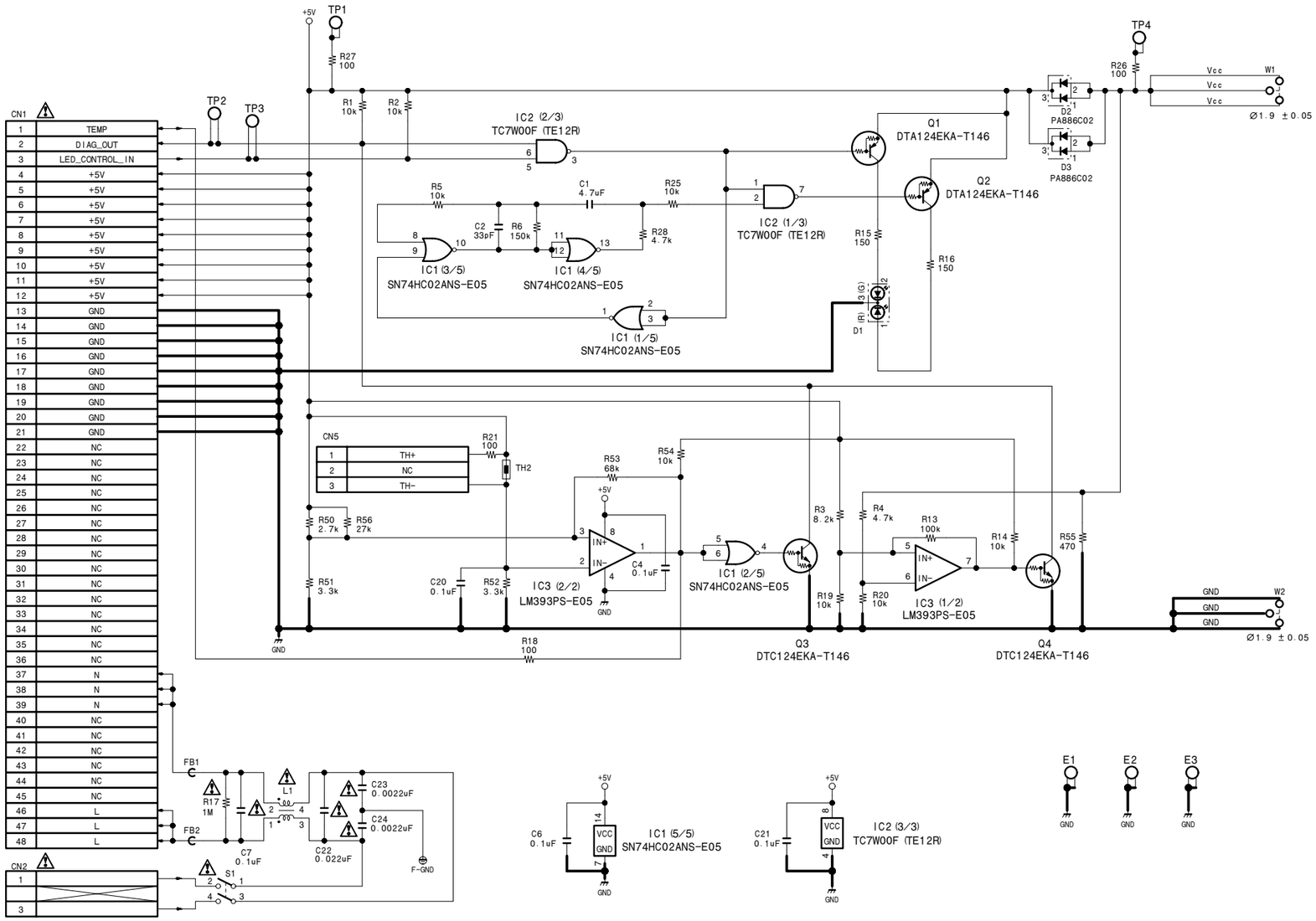
PFV-L10 (SY) : S/N 10001 and Higher





MB-862
BOARD NO. 1-674-366-11
LOT NO. 902-

PFV-L10 (SY) : S/N 10001 and Higher
BKPF-LPS10 (SY) : S/N 10001 and Higher



PS-571
BOARD NO. 1-674-368-11
LOT NO. 902-

http://getMANUAL.com

Section 5
Board Layouts

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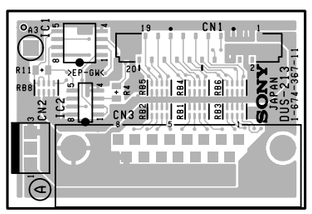
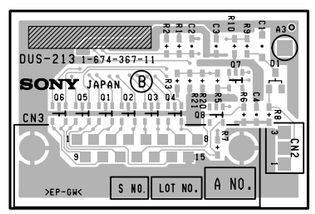
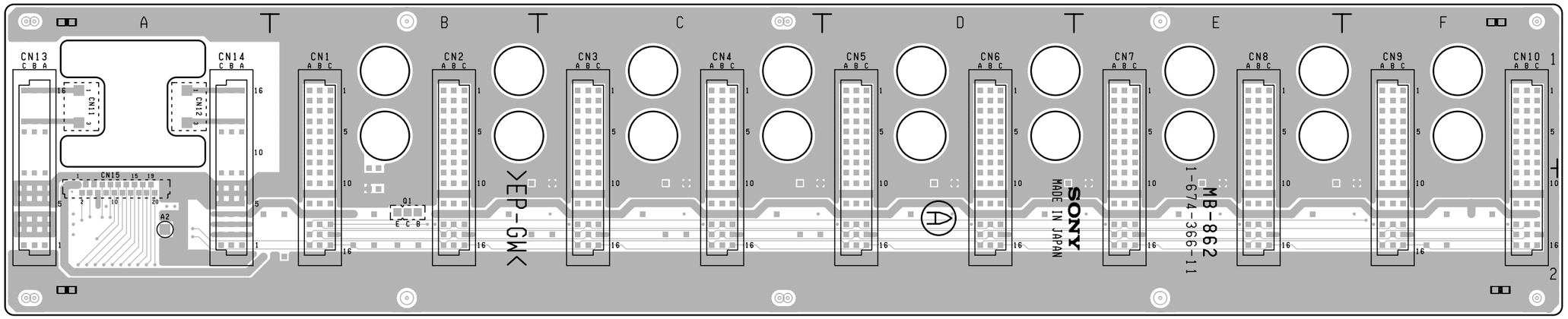


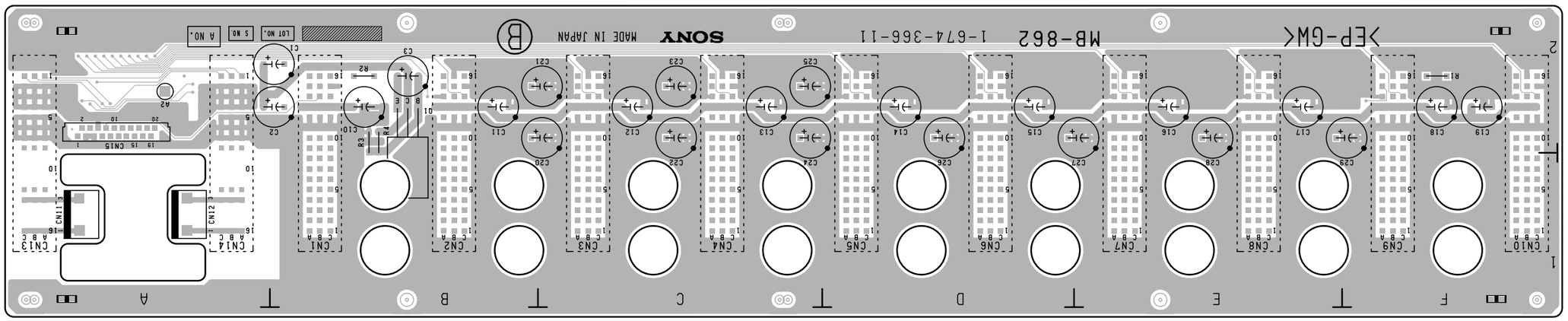
DUS-213 -A SIDE-
SUFFIX : 11



DUS-213 -B SIDE-
SUFFIX : 11



MB-862 -A SIDE-
SUFFIX : 11

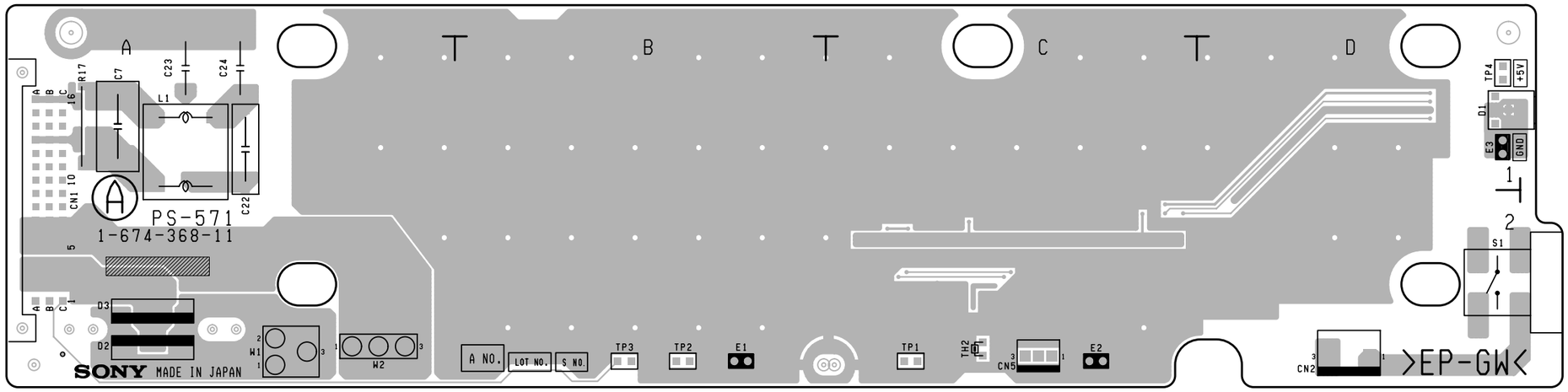


MB-862 -B SIDE-
SUFFIX : 11

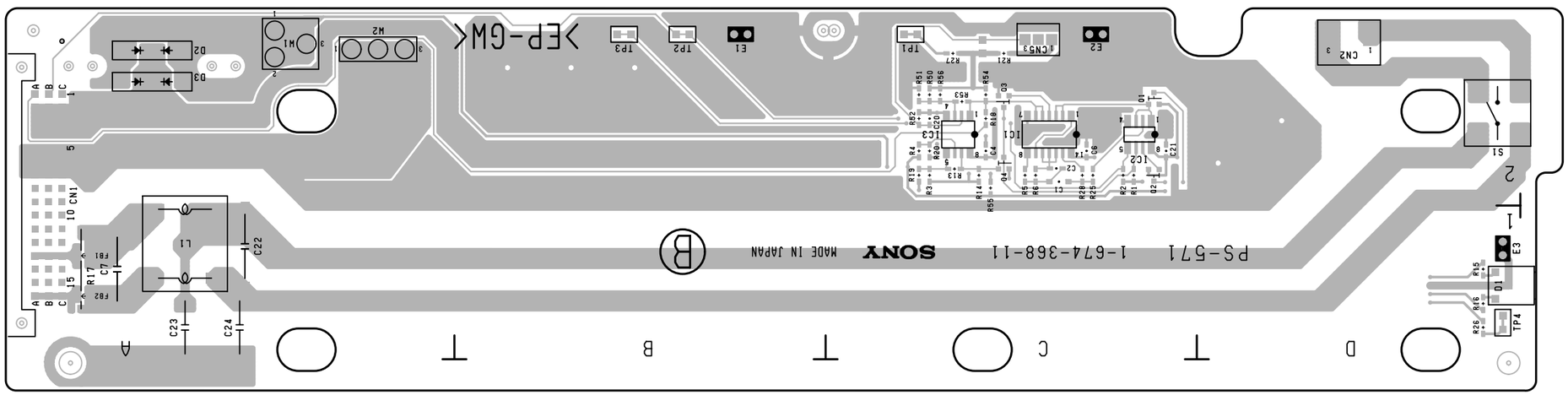
MB-862 (1-674-366-11)

*:B SIDE

C1	*B-2
C2	*B-2
C3	*B-2
C10	*B-2
C11	*B-2
C12	*C-2
C13	*C-2
C14	*D-2
C15	*D-2
C16	*E-2
C17	*E-2
C18	*F-2
C19	*F-2
C20	*C-2
C21	*C-2
C22	*C-2
C23	*C-2
C24	*C-2
C25	*C-2
C27	*E-2
C28	*E-2
C29	*F-2
CN1	B-1
CN1	*B-1
CN2	B-1
CN2	*B-1
CN3	C-1
CN3	*C-1
CN4	C-1
CN4	*C-1
CN5	D-1
CN5	*D-1
CN6	D-1
CN6	*D-1
CN7	E-1
CN7	*E-1
CN8	E-1
CN8	*E-1
CN9	F-1
CN9	*F-1
CN10	F-1
CN10	*F-1
CN11	A-1
CN12	A-1
CN13	A-1
CN14	A-1
CN15	*A-2
Q1	*B-2
R1	*F-2
R2	*B-2
R3	*B-2
R4	*B-2



PS-571 -A SIDE-
SUFFIX : 11



PS-571 -B SIDE-
SUFFIX : 11

PS-571 (1-674-368-11)

*:B SIDE

C1	*C-2
C2	*C-2
C4	*C-2
C6	*C-2
C7	A-1
C20	*C-2
C21	*C-2
C22	A-1
C23	A-1
C24	A-1
CN1	A-1
CN2	D-2
CN5	C-2
D1	D-1
D2	A-2
D3	A-2
E1	B-2
E2	C-2
E3	D-1
FB1	*A-1
FB2	*A-1
IC1	*C-2
IC2	*C-2
IC3	*C-2
L1	A-1
Q1	*C-2
Q2	*C-2
Q3	*C-2
Q4	*C-2
R1	*C-2
R2	*C-2
R3	*C-2
R4	*C-2
R5	*C-2
R6	*C-2
R13	*C-2
R14	*C-2
R15	*D-1
R16	*D-1
R17	A-1
R18	*C-2
R19	*C-2
R20	*C-2
R21	*C-2
R25	*C-2
R26	*D-1
R27	*C-2
R28	*C-2
R50	*C-2
R51	*C-2
R52	*C-2
R53	*C-2
R54	*C-2
R55	*C-2
R56	*C-2
S1	D-2
TH2	C-2
TP1	C-2
TP2	B-2
TP3	B-2
TP4	D-1
W1	A-2
W2	A-2

For the U.S.A.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

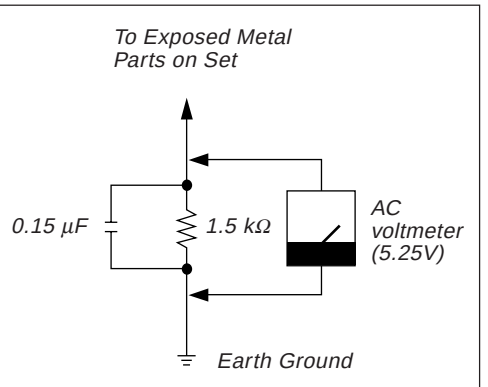


Fig A. Using an AC voltmeter to check AC leakage.

BKPF-LPS10 (SY)
PFV-L10 (SY) J, E
9-967-846-01

Sony Corporation
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Printed in Japan
1999. 6 22
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